Endothelial dysfunction and circulating microparticles from patients with obstructive sleep apnea

Titre	Endothelial dysfunction and circulating microparticles from patients with obstructive sleep apnea
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Résumé en anglais	Endothelial dysfunction is involved in vascular complications of obstructive sleep apnea (OSA). In this study, circulating microparticles (MPs) from patients with OSA-induced nocturnal desaturations were characterized and their effects on endothelial function were evaluated. Two age-matched groups of patients undergoing polysomnography for OSA were compared: 35 desaturators with a 3% oxyhemoglobin desaturation index (ODI) > or = 10 events per hour of sleep and 27 nondesaturators with ODI <10 events per hour. MPs were characterized by flow cytometry and then either used to treat in vitro human endothelial cells or to study endothelial function in mice. Circulating MPs did not differ between groups, but MPs from granulocytes and activated leukocytes (CD62L(+)) were found at higher levels in desaturators. In vitro, MPs from desaturators reduced endothelial nitric oxide (NO) production by enhancing phosphorylation of endothelial NO synthase at the site of inhibition and expression of caveolin-1. CD62L(+) MPs positively correlated with ODI. Endothelial NO production negatively correlated with both CD62L(+) MPs and ODI. MPs from desaturators increased expression of endothelial adhesion molecules including E-selectin, ICAM-1 and ITGA5, and cyclooxygenase 2. Moreover, injection of MPs from desaturators into mice impaired endothelium-dependent relaxation in aorta and flow-induced dilation in small mesenteric arteries. This study demonstrates an association between endothelial dysfunction and increased circulating levels of CD62L(+) MPs. This may initiate atherogenic processes in patients with OSA and severe nighttime hypoxia.
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